



1/24

1 AGCTTTATAA CCATGTGATC CCATCTTATG GTTTC AATCC ATGCACAGGA
51 GGAAAATTGT GGGCACGAAG TTTCCAAAGG GAAAATTTAT AGATTGGTAG
101 TTAATGAAAT ACAGTTTTTC TCCTTGGCAA ATTTAATTTA CTAGCTTCAC
151 TGTATAGGAA AAAGCAGGAA AAAAATTAAA ACCAACTCAC CTCCAAACCT
201 GTTTTGAGCT TTTACTTGTC TGCCCAATTG ATAGTTTCTA CTCTCTGCTT
251 TTGATGAAAA TATTTTTTAT TATTTTAATG TAACTTCTGA AAACTAAATT
301 ATCTAGAAGC AAATAAAAAG ATATTGCTTT TATAGTTCCC AGAAGGAAAA
351 AACAAACACT AGGAAAGTTC TATCTATCAG ATGGGGGAGA TGTGATGGAG
401 GCAGTGATAT TTGAGCTGAG CCTTGAACAA TGAACAGGAG TCTACCAAGC
451 GAGAGGCTAG CGGGTGGCCC TCAAGATAAA ACAACAGCAT GTACAAAGGC
501 ATGGAGACAT ACACATCTTG ACTCTTCCAG GAATGGTGGG AACGCTGGTG
551 GAGCTAGAAT GTAGGTACAT AGCATAAAGT GGCAGACGGG AAGCCTTTGG
601 AAATCTTATT ACATAGGACC CTGGATGCCA TTCCAATGAC TTTGAATTTT
651 CTGTAGGCTG CCAGCGAAAT TTCCAAGCGT GATAGAGTCA TGTCTATCTA
701 TGCACTTCAG AAAGACAACC TCAGGGTTAA TGAAGAAAAT GCATTGGAAT
751 ATAAGAAACT GGTGACCAGA GTGATCAATT GCATGACTGT TGTGAAAGTC
801 CAGGTGAGGG GAGCTGTGGG CAAGGTCAGA GTTGAGAGGC ATTTAGAGA
851 TAAAATGACA GTAAC TAAGT AGATGTCAGG CTGAGAAGAA AGGGCTGTAC
901 CAGATATATG GTGCTATCAT TAAGTGAGCT CAACATTGCA GAAAAGGGGT
951 AGGTTTGGTG GGAGTTGCTC ACAAACATG TTTAGTCTAA GCAAACCAT
1001 TGCCATGGGC TCAGATAAAA GTTAAGAAGT GGAAACCATT CCTACATTCC
1051 TATAGGAGCT GCTATCTGGA AGGCCTAGTA TACACGTGGC TTTTCAGCTG
1101 TGATTTTGTT TGATTTTAGG GATTATTCTT TTTCTGAATC TGAGCAATGT

FIG. 1A



1151 TAGCGTGTA AATACTCACA CCCACAGCTT TGAAGGGTG AGAAGTTATC
1201 ATAAATCATA TTGAGTTTGT TGTGATACCT TCAGCTTCAA CAAGTGATGA
1251 GTCAGGTCAA CTCCATGTGA AAGTTCCTTG CTAAGCATGC AGATATTCTG
1301 AAAGGTTTCC TGGTACACTG GCTCATGGCA CAGATAGGAG AAATTGAGGA
1351 AGGTAAGTCT TTGACCCAC CTGATAACAC CTAGTTTGAG TCAACCTGGT
1401 TAAGTACAAA TATGAGAAGG CTTCTCATTC AGGTCCATGC TTGCCTACTC
1451 CTCTGTCCAC TGCTTTCGTG AAGACAAGAT GAAGTTCACA GTGAGTAGAT
1501 TTTTCCTTTT GAATTTACCA CCAAATGATT GGAGACTGTC AATATTCTGA
1551 GATTTAGGAG GTTTGCTTCT TATGGCCCCA TCATGGAAAG TTTGTTTTAA
1601 AAAAAATTCTC TCTTCAAACA CATGGACACA GAGAGGGGAA CAACACACAC
1651 CAGGTCCTGT TGGGGGGTGG AGAGTGAGGG GAGGGAAGTT AGAGGACAGG
1701 TCAATAGGGG CAGCAAACCA CCATGGCACA CATATACCTA TGTAACAAAC
1751 CTGCACGTTT TGCACATGTA TCCCTTTTTT TTAGAAGAAG AAATAATGAA
1801 AAAAAACCTT TTTTCTATTT ATATAATCAT GGCATTTATA AGCATCTCTA
1851 TAGAGAAGGA TAATTGTGCT GAGATTAGAC AGCTGTCTGA GCACCTCACA
1901 CTGACCTATT TTAAACAAAA TGACTTTCCA CATCACCTGA TTTCGGCTCC
1951 ATGCRGGGTA AGCAGTTCCT AAGCCCTAGA AAGTGCCGAT CATCCCTCAT
2001 TCTTGAATTC CTCCTTTTAT TTACCAAAT TCCTGAGCAT GTTCAGGAAA
2051 GATGAAAAGC TTATTATCAA AATAAGTGGC TGAGATAGAC TTCTTGTCAC
2101 ATTTGTTACA GTAAAATGGG TCTCCAAGAA AGAAAGATTT GCCTTGGGCT
2151 CTAGCATGGC CATTTATTTA AGAAAGCATC TGAAACATGA AGCTACCACA
2201 GCATCTCTCC TGTGGTTCCA GACGGAAGCC TGAGAGTCTA GGAGGAGGTG
2251 GACCGAGAAA CCCTGCCAAA GTAAGTAGTA GTGCCGGGTT TCTCACAACA

FIG. 1B



3/24

2301 CGATGCAAAG GGGCTAGAAT CAGATGACTA TTTTCATGTT TCAACATACT
2351 ACACACTGGA AAACGTTACG GCAGACTCTA CTTTATAATG GGGCTGCAAA
2401 TGTAATGA CTACTAGAAC TAGGTCCTCT TAATAGCAGC AAAGTTTAAA
2451 AGGGTCAGAG GGAGCTCCAG ACACAGGTTA GATTTGATTT CTCTCCTAGT
2501 TCTGCTGTGA ACAAGAGGTA TAAGTTTGGC CAACTCACTT AACCCCTGAA
2551 GCTCAGTTAC CTTATCTGTA AAATGATTGC ATTGTACTAG GTGTTCTCTA
2601 AAATTTCTTC TACCTCTGAC TTTT TAGGAG ACTAATTTTT AACTCCTTTT
2651 TAAGCTATTG GGAGAAAAAT TTAATTTTTT TTCAAAGTT ACCTTGAATC
2701 TCTAGAGCAG TTCTCAAAAC TATTTTGTC CAGGCAAAGG AAATGAGACT
2751 AGGTACCCAG AATGAGGCAC CCTGCATAAA GCTCTGTGCT CTGAAAACCA
2801 ATGTCAGGGA CCCTGTGATA AATAATTAAA CCAAGTATCC TGGGACACTG
2851 CTAGTGACAT CGCCTCTGCT GATCACTCTT GCCAGCGAGA CACTCTATAC
2901 TTGCTTTCTC ATCATTGGCA TCCAACTGC CTACTAATCC ATTGCTTTGG
2951 AAAGTTTTTT TTAATAAAAA GATTATTTCT ATTAGGAGGA AAACATCCCA
3001 TGTTAAATAG GAAAATTAAC TGAAATCATT TTCAGATGTG ATTTT TAGCA
3051 CTTATAGCCA TTTCAAACCA TGGTATTCAT TTATACTATG CTATTTATTG
3101 TAAACTTCT TTTTTTTTCC AAGGAAAATA AGATAGTTTG CTTTATTTA
3151 AAACAGTAAC TTTCTTATAT TGGGGCACTG ACCAAAATTC AATACTGGTA
3201 CAAATATGTT ACCTAGGGGG TCAAAATATG TGCCAGGTGA ATTTTCTGAA
3251 TTTCTCTAAA GAGAGAATTT TAAACCTTAT AAAACAATTA GAAACAAGTG
3301 AGTGAGAGGT GAGCATCAAC AACCTGTGTA ACATAAGCCA CAGTACAAAT
3351 TTAAGCTGAA TAACCAAGCC ATGTCAGTTA TCCCAAATCA TTTTGTAA
3401 TATTTAGGAG GATACACATA TTTTCAATAA CTAAAAAGTG AATCTTTACT
3451 CCTATCTCTT AATACTCGAA GAAGTATAAC TTTCTTCTT TACTAGATTT

FIG. 1C



4/24

3501 AAATAATCCA AATATCTACT CAAGGTAGGA TGCTGTCATT AACTATAGCT
3551 GAGTTTATCC AAAATAGAAA AATCATGAAG ATTTATAAAG CATTTTAAAA
3601 ATAATCATTT ATAGCAAGTC CTTGAAAGCT CTAAATAAGA AAGGCAGTTC
3651 TCTACTTTCT AATAACACCT ATGGTTTATA TTACATAATA TAATTCAACA
3701 AAACAGCATT CTGACCAATG ATAATTTATA GGAAATTCAT TTGCCAAGTA
3751 TATGTTTTAT TATAAAGTTA ATATTTTGAC CAATCTTAA AATTTTAAAA
3801 CTCTATTCTG ACATTTCCAG AAGTATTATC TTAGCAAGTC ATCTTTATGA
3851 TACCACTTAT TAAACTGAAG AGAAACAAGA TGGTACATTC TGGGTTTTAC
3901 TTTAAAAGGG ATTTGATTCA ATAATTTGAT TTATCACTAC TTGAAAATTA
3951 CATTTTCTTC CTCAGACTGG ATGGCAATGA GATGAAAGCA GCTTTCCTGG
4001 CTCTCAACTT CCCTTCTTCA TCAATTTTTC CAGCGTTTCA TAAGGCCTAC
4051 ACTAAAAATT CTAAACTAT ATATCACATT AATATAATTA CTTATAATTA
4101 ATCAGCAATT TCACATTATC GTTAAACCT TTATGGTTAA AAAATGCAAG
4151 GTAAGAGAAG AAAAAACAC ATTGAACTAG AACTGAACAC ATTGGTAAAA
4201 TTAGTGAATA CTTTTCATAA GCTTGGATAG AGGAAGAAAG AAGACATCAT
4251 TTTGCCATGT AACAGGAGAC CAATGTTATT TGTGATTTC GATTGTCTTT
4301 GCTGGACTTC TTGGAGTCTT TCTAGCTCCT GCCCTAGCTA ACTATGTAAG
4351 TCTCACCTTT TCAAGTTTGC TACCAAAATG CATTTGCAAG GAAATGTGAT
4401 ATTAAATCAC TCTCAATCTC TTATAAACTT CAGAATATCA ACGTCAATGA
4451 TGACAACAAC AATGCTGGAA GTGGGCAGCA GTCAGTGAGT GTCAACAATG
4501 AACACAATGT GGCCAATGTT GACAATAACA ACGGATGGGA CTCCTGGAAT
4551 TCCATCTGGG ATTATGGAAA TGTAGGTAGT CAACGTGCAA TTTTCACTTT
4601 ATTGTTTAAA AATACGACTT CTTTTTAACA AAAAATGTGC ATGTTAACCA
4651 TAAAGAAATT AAAAATAAAT TCTAATTACA CATAGCATAC AGTTATAAGT

FIG. 1D



5/24

4701 AAAGGTGACC ATTTTGCTCA TCCGATTTTG TTCCCTAGAG ATAAC TACTG
4751 TTAATAAGTG TTGCATGATC AGTTAAAATT CAAACCAACA AACACTATGT
4801 TCAAGGGATT GTGGGTATAT ACAACAAATA TGAACATCCT TTTGCCTTGC
4851 CTGCAGATAC CCTCAATAAT GCTGAAAGAC TTATACAACA TTACTGCTTC
4901 CAAAGCTTAG ACTATCTCAC TTTGTTTTCA AAGGAGGTTT TACGACCTTC
4951 TAAAGAGATT GAAATTGACA TTTCACCTAA AACTCGGGAA ATGTAAATGA
5001 CAATATTAAT TGGTAAGAGA GGAAAGAAGA AAGAAAGAAG GAAGGAAAGA
5051 AAGAAAGAAG GAAGGAAGGA AAGAAAGAAA GAAAGAAAGA AAGAGAGAGA
5101 AAGAAAGAAA AAGAAAAAAG AGAGAAAGAG AGAAGGAAAG AAAGAGAGAA
5151 GGAAAGGAAA AGAGAAGCAA AGAAAGAGAG GAGCAAAGAA AGGAACACTT
5201 AGCACTAGTT GGGAGACCCA ACTCTGGAAT TATCAGCTAT ATATTTAACA
5251 AACGTTATAC TTTTAAATAG CAAACTCTTT ATTGTTTCAA TTTTATCTGG
5301 TCAATTGGAA AAATAATTTT TGTCTTATCT GTCTCCTTGA AATGTGAGGA
5351 TCAAAGGAGA CTAAACATG ATAGCTTTTA AAGTCTATTT CAGTAAACA
5401 GACTTATATA GAGGGGTTTT TATCATGCTG GAACCTGGAA ATAAAGCAAA
5451 CCAGTTAGAT GCTCAGTCTC TGCCCTCACA GAATTGCAGT CTGTCCCCAC
5501 AAATGTCAGC AATAGATATG ATTGCCAAGC AGTGCCCCAT CCAGTGCTCT
5551 TATCCCAGCT CATCACGATC TTGGAGTTCC CATTTCTCTC TGCAGGTGGA
5601 ACTGACCTCT GATAAGAAAA GCTCCTCGGA GAACACATGC CTCACTATTT
5651 GCCATCTACT TTAACAGGGC TTTGCTGCAA CCAGACTCTT TCAAAAGAAG
5701 ACATGCATTG TGCACAAAAT GAACAAGGAA GTCATGCCCT CCATTCAATC
5751 CCTTGATGCA CTGGTCAAGG AAAAGAAGGT AAAAATAAAA GGCTTTTTAT
5801 TTTTGGTGAG GGGAGAGGTT TTACATCCTT CAGTAAATAA CGAGAAGATC
5851 ACAGTCATTC CCTCTTGA CT ACAGTATGTT GTAGTGTGCA GCACAAAGGG

FIG. 1E



6/24

5901 GGAAGTTATT GGTGATTGCC TGAGGGAAGG CAACTTCTGC CACATCAAAT
5951 GCTGTGGCTC ACACCTACCT CTACAACCGC TGAGCAAAGC ACTTGAAACC
6001 TTGACTGTTA GAGGAGCAAA GCTCTGGTCA CACCAATAGG AGCCTCAGTA
6051 CTTTGCCAAG GACATTTTTTC TGCAAGAGTT AGTTAGGGTT ATTAGATTTA
6101 GCAAATGAAA ATAGAAGATA TCCAGTTAGG TTTGAATTTT AGGTAAGCAG
6151 CAGGTCTTTT TAGTATAATA TATCCTATGC AATATTTGGG ATATACTAAA
6201 AAAAGATCCA TTGTTATCTG AAATTCAAAT GTAAGTGGG ATTGTATATT
6251 TTGTCTGGCC ATACTAATCC AGGTGAGTGG AAAGAAGAGA TCCATAATGT
6301 TTTAAATAT TTGCCTGAGT TCATATTCCT ATAAGTATA AATGAGTACC
6351 TTTCAATGAC AAGGTAGAGA AAATAAATAA ACTGCATTCT CAGAAGATGA
6401 TTATTACATA GTCTAATCCA AGGAATCTAT GATGACCAA TGAGGTCCAA
6451 GTTGCAGAAT AAATTAAGCC TCAGACTTCT GTGTTTATGA GAAGCTGAGG
6501 TTTCAAACCA GGTAAATCCC TTAGGACACT TAGAAATGCT AAGATATACA
6551 GAATAAGCTA GAAATGGCTC TTCTTCATCT TGATTATGGA AAAATTTAGC
6601 TGAGCAACAC TCACTGTTGG CCTCGTATAC CCCTCAAGTC AACAAACCAC
6651 TGGGCTTGGC ATTCATTCTC TCCCATTCTT CCTTTCTACC TCTCTTTTCC
6701 AACTCAGCT TCAGGGTAAG GGACCAGGAG GACCACCTCC CAAGGGCCTG
6751 ATGTACTCAG TCAACCCAAA CAAAGTCGAT GACCTGAGCA AGTTCGAAA
6801 AAACATTGCA AACATGTGTC GTGGGATTCC AACATACATG GCTGAGGAGA
6851 TGCAAGGTGA GTAGCATCCC TACTGTGCAC CCCAAGTTAG TGCTGGTGGG
6901 ATTGTCAGAC TATCCTCGCG CGTGTCCATA GTGGGCACCA GTGATGCAGG
6951 GATGGTCATC AAGGCCAACA TTTGTGCAGT GCTTGCTCTG TGCCAGGTAC
7001 TGTTCTATGT GCTTTAAGTG TGTTAACTCG GTTCTTCACA GCAATCTTAT
7051 AGGTTCTATT TTAATCCTAC TTTATGGATG AGGAAACTGA GGTACAGAGA

FIG. 1F



7/24

7101 GGTCACAAAA TCCTTGCCTG GGTCAATTCC AAGCATTTTG GCTGTGGATT
7151 CTGTGCTCTT AAATATTATG GAACACTGCC TTTTAAGTGT GAATCAAGAG
7201 TAGACTCAAG TCATATTCAA AAGAATGCAT GAATGGCTAA ATGAAAGAAG
7251 AATGCTAATA GAATCTATTA ACTTTCTATA GCTCAGACAA TCACTTAATT
7301 TCTGGACATT CAAAGAACAG CTGCACACAA ACAAAGTGTC TACCTAGGGA
7351 CCTAACTTAA TGGCAATTTT CCAGATCTCT GAATTGATTG ATTTTCATCAC
7401 AACAAAGTAGA TAAACCTTGA CATTAGCACA TAGCTAGTTT GGAAACCCCT
7451 ACTCCCCCAA TCCCCTCCAA GAAAAGAGTC CTTAAATAGA CATTAAATATA
7501 GGCTTCTTCT TTTCTCTTTA TTAGAGGCAA GCCTGTTTTT TTA CTCAGGA
7551 ACGTGCTACA CGACCAGTGT ACTATGGATT GTGGACATTT CCTTCTGTGG
7601 AGACACGGTG GAGAACTAAA CAATTTTTTA AAGCCACTAT GGATTTAGTC
7651 ATCTGAATAT GCTGTGCAGA AAAAATATGG GCTCCAGTGG TTTTACCAT
7701 GTCATTCTGA AATTTTCTC TACTAGTTAT GTTTGATTTC TTTAAGTTTC
7751 AATAAAATCA TTTAGCATTG AATTCAGTGT ATACTCACAT TTCTTACAAT
7801 TTCTTATGAC TTGGAATGCA CAGGATCAAA AATGCAATGT GGTGGTGGCA
7851 AGTTGTTGAA GTGCATTAGA CTCAACTGCT AGCCTATATT CAAGACCTGT
7901 CTCCTGTAAA GAACCCCTTC AGGTGCTTCA GACACCACTA ACCACAACCC
7951 TGGAATGGT TCCAATACTC TCCTACTCCT CTGTCCACTG CTAA

FIG. 1G



8/24

CATGCTTGCC TACTCCTCTG TCCACTGCTT TCGTGAAGAC AAGATGAAGT

51 TCACAATTGT CTTTGCTGGA CTTCTTGGAG TCTTTCTAGC TCCTGCCCTA

101 GCTAACTATA ATATCAACGT CAATGATGAC AACACAATG CTGGAAGTGG

151 GCAGCAGTCA GTGAGTGTC ACAAATGAACA CAATGTGGCC AATGTTGACA

201 ATAACAACGG ATGGGACTCC TGGAATTCCA TCTGGGATTA TGGAAATGGC

251 TTTGCTGCAA CCAGACTCTT TCAAAAGAAG ACATGCATTG TGCACAAAAT

301 GAACAAGGAA GTCATGCCCT CCATTCAATC CCTTGATGCA CTGGTCAAGG

351 AAAAGAAGCT TCAGGGTAAG GGACCAGGAG GACCACCTCC CAAGGGCCTG

401 ATGTACTCAG TCAACCCAAA CAAAGTCGAT GACCTGAGCA AGTTCGGAAA

451 AAACATTGCA AACATGTGTC GTGGGATTCC AACATACATG GCTGAGGAGA

501 TGCAAGAGGC AAGCCTGTTT TTTTACTCAG GAACGTGCTA CACGACCAGT

551 GTACTATGGA TTGTGGACAT TTCCTTCTGT GGAGACACGG TGGAGAACTA

601 AACAATTTTT TAAAGCCACT ATGGATTTAG TCATCTGAAT ATGCTGTGCA

651 GAAAAAATAT GGGCTCCAGT GGTTTTTACC ATGTCATTCT GAAATTTTTTC

701 TCTACTAGTT ATGTTTGATT TCTTTAAGTT TCAATAAAAT CATTTAGCAT

751 TG

FIG. 2



9/24

	MKFTIVFAGLLGVFLAPALANYNIDVNDDNNNAGSGQQSVSVNNEHNVAN	50
51	VDNNNGWDSWNSIWGYGNGFAATRLFQKTCIVHKMKKEVMPSIQSLDAL	100
101	VKEKKLQKGPGGPPPKGLMYSVNPNKVDDLSKFGKNIANMCRGIPTYMA	150
151	EEMQEASLFFYSGTCYTTSVLWIVDISFCGDTVEN	185

FIG. 3



10/24

1 GAATTCAAAC AGCAGGCCAT CTTTCACCAG CACTATCCGA ATCTAGCCAT
51 ACCAGCATTC TAGAAGAGAT GCAGGCAGTG AGCTAAGCAT CAGACCCCTG
101 CAGCCCTGTA AGCTCCAGAC CATGGAGAAG AGGAAGGTTG TGGGTTCAAG
151 GAGCTTTTCA GAGTGGAAT CTGTGGATCA GTGATTTATA AAACACAGTT
201 TCCCCCTTTA TTAGATTTGA ACCACCAGCT TCAGTTGTAG AAGAGAACAG
251 GTTAAAAAAT AATAAGTGTC AGTCAGTTCT CCTTCAAAC TATTTTAAAC
301 GTTTACTTAT TTTGCCAAGT GACAGTCTCT GCTTCCTCTC CTAGGAGAAG
351 TCTTCCCTTA TTTTAATATA ATATTTGAAA GTTTTCATTA TCTAGAGCAG
401 TGGTTCTCAT CCTGTGGGCC ATGAGCCCTT TGGGGGGGTT GAACGACCCT
451 TTCACAGGGG TCACATATCA GATATCCTGC ATCTTAGCTA TTTACATTAT
501 GATTCATAAC AGTAGCAAAA TTAGTTAGGA AGTAGGAACA AAATAACGTT
551 ATGGTTGTGG TCACCACTAT GTTAGAGGGT CCGCAGCATT CAGAGGGTTG
601 AGAACTGTTG TTCTAGAGGC AAATAAGAAG ACAGAGTTCC TTGATAGGGC
651 CCAGAGGCAG TGAAAGAAGT TTCCACGTAG AAAGTGAAGA AGGTCTGGTG
701 TCCGAAGCAG TGAGGAACTT AAAAAAAGAA AACCAAAAAC ATTGCCAACT
751 AACAGTCCAG GAGAAGAGCG GGGCATGAAA GGCTGAGTTC CCATGGGATG
801 CCTTGAATGG AATCAGAGTG TGGGAAAATT GGTGTGGCTG GAAGGCAGGT
851 GCCGGGCATC TCAGACGCTG GTAGCTGGGG AAACAGGAAA CCCCTTTAGG
901 ATCCCAAGAT GCCATTCCAA TGAGCTTGAG ATTTTCTCA TGGACTGCCA
951 GTGAATGTTT CTACGCTCCG GAAATTAATG TTTACTTATT TTCCATATTC
1001 TAGGGGAGAA CCCTGGGAAA AATGGAGGAC ATTCATTGAA ATATCTGAGT
1051 CCTGGGATAA GGCAGGCTTG GTCCTACAAC TCTGGTAAAA GTCCATCAGG
1101 AAGTGCCTTG ACCAAGGCTG GAGTGGAGAG CTGTTGGTGA GATGTAAGGG

FIG. 4A



11/24

1151 CAAGGTTTAG TTGCTAGATA TGTAGATGGC AAGATGGTGC TGCCAACAGC
1201 CCCCAGAGCT CTAACCCACT GAGAAACCCA GGAATGAATG ATGGGAGATG
1251 GCTTTGGTGC CAGCTGCTAG TGACATGGCT GGAAAGCTGC ACTGGCTTCG
1301 AGGCCAGACA ATTCCTCAAG GAAACATCTG GCCAGGGTGC AAGGGCCAGT
1351 TTCCTTCCTT GGAGTTCCTT TCACAGCTAA GAACATCATC CCCCACCAC
1401 TGGTTTTGTT AAAAAGTTTT CAGTATGACT TGAGCATGGT CAAGAAGCAT
1451 AGAGAGGGGG AAATAAGGGT GGAAGGAGCT GGAGAAAGCT TACAATAGGA
1501 CTGGGTAAAG GGAAGGAGAA GAAACCATTC CCGCATTCCT ATAGGAGCCA
1551 GTACCAGGAA GGGCAGGTGT ACACACAGAT CTCATCTAAG GCCATGTTTG
1601 GTTTAGGGAT TACTCTTCTC CCGAATCTGA GCAGCAGCAA TACGTAAAAT
1651 ACCCACACCC ATGGCTTCCA TATTCCAGAA CTTATCACAA ACCGTGTAGA
1701 GTTTACTGAG ATACCTTCGT CAGAGGATGA GTCAGAGGCC TCCTGCCTAA
1751 GGGCCCTACT GAGCAGGCAG CTAAAGGCTT CCGGGCCTCT GCAGCTCCAC
1801 AGATACAGGA GAGGGAAGCA GATAAGCCGT GGAATCCACC TGAGCACACC
1851 TAGCTTGAGC AAAGCTGGTC AGGTACAAAT AGCAGAGGGC TGAATGTCTG
1901 TGAGCACGCC GCCTGATCCT CTGCTCCACC AACTCCTGC CGCCATGAAG
1951 CTCACAGTAA GTCAGATCTT CTTTCAATG CAGCACCATA CAACATTAAT
2001 AGTCAGGGGT GAGGGGGTCT GACTCTTACG GCACTGTTAC CATAGTGGAA
2051 ATATTCTCCT TTCTTTTCAT GGAATCATGG TGTTTACAAG CATGTCCATA
2101 GAGAAGAAGA ATTGCCCCGG AAGAGCCTGT CACAGGCTGA ATACTGTAGA
2151 ATTGTCTTTC ACACCATCTG TTCCAAGGTT CTACTTAAGA CGAGCAGTCT
2201 CTGGGCTCCA GAAAGAGTCT TTCTTAGCCT TGATCTCTTT CTTATTTCTG
2251 ATTTCTCCTT TCTTATCCAT GATTTCCACT TTTACCAGTT CTGGGCATGT

FIG. 4B



12/24

2301 TCCGGTCAGA CTGGAAGATC ACTGTTGTCA AAAC TAGTCT TCAACACTCT
2351 TGGCTGTTAA CATGAAAACA ACGGTCCTTG GGCCCTGTGC AAGCATTTCT
2401 TGGAGAAAGT CTCTGGGGAT GAAGCTATCT CAGTTTCCCC ACTGAAGTCC
2451 TAGGATACAG AGGCTCAAAC AGAGTGCACA TATTCAATTT CAGCATACTC
2501 TATTGGCGCT GCTTTATGAA TCATATGAAT TTATGGAATT GGAAATGTAA
2551 ACTATGACCA AGAAGCGTCC ACCTCAGAAC AGGTTGGGTG GGGAACTCCA
2601 AGCACAGGCC AGAGGGCTGC GTTCTCTTC TAGTCTGTG TAGAGGAGTG
2651 GTTCTCGACC TTCCTAATGC TGTGACCCTT TAATACAGTT CCTCACGTTG
2701 TCGTGACTCC CAGCCATAAA ATTACTTTCA TTGCTACTGC ATAAGTGAA
2751 TTTTGCTACC ATTATGAGTT GTAATGTAAA TATCTGATAT GCAAGATACC
2801 AGATAACCTA AGAAACGGTT GTTTGACCTT TAAAGGGGTC ACAACCCACA
2851 GGTGGAGAAC TACTGGTCTA GGGTCCTTTA CAGTCCTTTA GCTGCCTCAT
2901 TTACAGGAGA TAACATCATG CTCAAAACT CCCTCCACAT TTGGCTTTTT
2951 GGGTTGTTTT GTTTTGTTTT TCAAGACAGG GTTCTCTGT GTAGCCCTGG
3001 CTGTCCTGGA ACTCACCTTT GTAGACCAGG CTGGCCTCGA ACTCAGAAAT
3051 CCGCCTGCTT CTGCCTCCTG AGCGCTGGGA TTAAAGGCGT GCGCCACCAT
3101 GTCTGGCTCA CATCTGGCTT TTAAGAGAC CGATTTTAAC TTCTTGCATT
3151 GAAAATAAAT ATAGTAGAAA TGCTTAACCT ACTAAGACAA TAAAAACAGG
3201 ATTCCTTCTG CTAGGAAGAA CACGTTCCAG ACTAAGGAAA AAAACCTTTT
3251 CAGGGCTTTC ATTACACTGT GCCATGCACT AATTTTATGT TTTCTTCATC
3301 AGTTTTCAGT GTCTGAAATT CAGTGTCAAA ATTCTAAGAC TACATATGAA

FIG. 4C



13/24

3351 TATCATTACA GTAAC TCAGC AATTCTATGT TACCAGTAAG TTTTCTGTA
3401 GTTTAAAAA AAGGTGGAAG AAGAAAGCAC AGATAGTTTA GCACATGGGT
3451 AAAATCAGTA ACTATTTCTG ATGAGCTTGG TGAAGATGCT GTAAACCATG
3501 CGACCACCAG TCCTGTTCTC TGTGCTTTCA GATGTTTCGTC GTGGGTCTGC
3551 TTGGCCTCCT TGCAGCTCCT GGTTTTGCTT ACGTAAGTCT CATTTTCTG
3601 AAGTTCATTG TCAAAACTGC ATTTACAGTG AAATGTGATC TTAAGTCACC
3651 CTCTGCTTCT TATGAACATT AGACGGTCAA CATCAATGGT AATGATGGCA
3701 ATGTAGACGG AAGTGGACAG CATTCCGGTGA GCATCAATGG TGTGCACAAC
3751 GTGGCCAATA TCGACAACAA TAACGGCTGG GACTCCTGGA ATAGCCTCTG
3801 GGA CTATGAA AACGTATGTA ATGGACACAC AGGGTAAAGA TATGGTGTAG
3851 CCACCACCCA TTAAAATTTC TGAGGTGAAT TCTAGCTGTT CATGAACATT
3901 AAAAGCTACC AGTAAAAGTG CCCATTCCAC TCAAACAAT TTTACTTTTT
3951 TGCATATAAT TATTGCTAAT AAGTATTACA CAATAGGTCG AAATTCAAAG
4001 GGATCAATAG TAAGGATAAA AACTATGTAC AAAGACAAAC ACAGCATCCT
4051 TTGGTCTTCC CTGCAGAGAG TCTCCATGAT GTTAAAGGTC CAATGTTTTA
4101 TGGAGGCTGA ATGAAATACG AATGCCTCTG TGATGGAAAA GGCCCAACAT
4151 CTTATGGAGA ATGAGTGAAG TATGAATGCT ATTAGTTGTA AGAGAAGGCG
4201 ATGCAAAGCA ACACTTGGCA CCACCTGCCA ATTACTACTT TCCTATTTAA
4251 ATGTAGTTTA AAAAGCAAAG CCTGTCTTCC CTGCCTCCTG GAAACACTGC
4301 GGATGGAGGT AGACCAAGGT ATGACAGCCT TTAAAAGTTT GTCAGCAAAA
4351 CACTCCCCCA TACACACATA CACACACCCT CCTACTACAC TGGAAGTGAA

FIG. 4D



14/24

4401 GCAAAGGCAG TGGGTTAGAT ATATCCACCC TCTAAGAGTT TGCAGGTCAT
4451 CTATATATGA TAGCCAGAGA CACAACGCA GGACAGCCAG ACTCTGAGCA
4501 CTCTCCCCAG CTCCTTGTAG CTCTGTTTCA GTGGTGACTT GTGACAAGAA
4551 TCCTGGGGAA CCTGTGCCTC ACTGTTCTCT GTCTTCTTTA ATAGAGTTTC
4601 GCTGCCACGA GACTCTTCTC CAAGAAGTCA TGCATTGTGC ACAGAATGAA
4651 CAAGGATGCC ATGCCCTCCC TTCAGGACCT CGATACAATG GTCAAGGAAC
4701 AGAAGGTAAA GTCCTGCCTT CTTCTTTGGA GTGACAGGAA GTCTTACAGT
4751 CTCCAGTACA CAGTGAAGTC ACCCCCATT CTTCTTTGGT GGAGCATGAC
4801 AGCATGTTTG TCATGATAAA TGCCACAAAC ATGTAAAACT GTTCAGTGTC
4851 TGCCTGAATG GAGGGTGGCT TCCACTGTGT CAGATGCCGT GGCCACATC
4901 TGCCTCTGCA GGGTCCAGTA AAGCACTGGC TATCTTGAGT GTCAGAGACC
4951 CAAAGGTCTG TACACTTCAG TACAAGCCCT CCATATTTCA AGGGCACACT
5001 CCTACAGTCG TTGGGGTTAT CAGAACTAGC AAACATAGAG ACTGGATTTT
5051 CAGATGAAAA GAAATCCTTT TTAAAGTCTA AGTATGCCTT ATACAATGTT
5101 TGAGATATTC TCAATACTAA AAAAAAAAAA ATTGTTGCTT GCTTGAAAAAT
5151 CAAATGTAAC CAAGTGCCT ATATCCAGTG TCAATCATGG CTGTAGTAGA
5201 TGGGAAGAGG GAGCCCGTGG TTTTCACAGT CAGACGCCTG AGTTATTCTT
5251 CTAAGTGATA AATTGGTTCC TATAACAAGC AAGCCAGTGA ATATAAATAA
5301 GCTCTATCTC AGAAGTTATC CTGTAGTGCT ACCCTAGAAT CTAAGAGAGC
5351 AAAAGTGCTT CAAATTTTCA AATAAGTTTT GCTTTGGACT TCTGTTTTTC
5401 TAAACAATA TAACTTCAAA CCATCTAAGC CTCGTGGGAC ACTTAGAAAT
5451 ACCAAGCCAT TCAAAGCTAG AATTGTTTCT TCACCTTACT TGAAAACAAA

FIG. 4E

15/24



5501 ATGACAACCA AAAATTGTCC CCACTGCCCT TGTACATCTT CAGATCAGTA
5551 AAGTCCTGGG CTCAGGGATC ATTCACTTTC TTTCTTTCCT TTCACACTCA
5601 ACTTCAGGGT AAAGGGCCTG GAGGAGCTCC TCCCAAGGAC TTGATGTACT
5651 CCGTCAACCC TACCAGAGTG GAGGACCTGA ATACATTCGG ACCAAAGATT
5701 GCTGGCATGT GCAGGGGCAT CCCTACCTAT GTGGCCGAGG AGATTCCAGG
5751 TGTGTACCCT GAGATGCTGT ATATCCCAAT GCAGTACTGA GAGAGCCATC
5801 AGACACTCTA AAGTGTGACC ACAGACGGAC CAATCATGTG GATTATCAGA
5851 GCAAACACTT GCTTGCTCCT TGTCAGACAG TTGTCCATGC TTCAAAAGTT
5901 CATTAAAAAA AATAGTTCAC AGGCTCCTCA CAGAAACCTT AGTAGAATCC
5951 ACAGCTTCTG CTCTTAGTCT TACTTTTTAG AAAGTGAAGC CCAGAGAAAG
6001 GTCACAAAAC TTTTGTCTGG CTCAGGTTCT ATGTCTTTAA CTTTATAGAA
6051 TACCGTCTTT CTGGGTGGGT GGGCTCTAGA GTAAACTTCA AGTGAGTTCA
6101 AGGAAAGCAT GAGAAGTAGG GAAGACCAA TGAAAGGAGA ATGCCAATGA
6151 AATCTATCGA TTCTATAGCG CCAATGCTTA ACTCCTAGGC GTTCAAAGAA
6201 TAGTATCCAC AAGGTGTCAG CCTAAGATCC TAATCTAACA GCAAGTTTTT
6251 AGATCTCTGA AGTGAAAAGA GAAAGCAAGA GAGGAACAGA GACAGAAACA
6301 GTAAGAGACA GAGAGGCAGA GACAAAGAGA CAGGGAGAAT AGAGAGGGAT
6351 TAAAATTAAT ATATAGTTTA GAAATTACGA CTCCTCACAG TCCCTGCAGA
6401 GTCCTAGGAT AGGCACTGAT TTGGACTTCT TTTCTTCTCA CTAGGACCAA
6451 ACCAGCCTTT GTACTCAAAG AAGTGCTACA CAGCTGACAT ACTCTGGATT
6501 CTGCGGATGT CCTTCTGTGG AACATCAGTG GAGACATACT AGAAGTCACA
6551 GGAAAACAAC CCGTGGGCTC TGACCATCGC AATGCTTGAT TATGAGAGTG

FIG. 4F



16/24

6601 TTCTCTGGGG GTTGTGATTA GCTTCTTTAA GGCTCAATAA ACCCACGTGG
6651 CAGCACATCC AGTTTGTAAT GACATGCCTC ATGACTTCTA TGGGAGTCCA
6701 ATGTGGCACC TGCCAGCCTG TATTCAGGAC CTCTCCGCTA TAAAGCATCC
6751 CTCCAGAGTT TTCAAATACT ACAAAGCACA GCCTGGGTTT GGGCTCAGAT
6801 AGGCCACTGC TGCCTGACTA CATTACAGAC AAACAAGTTT TAAAAGAAAG
6851 AAAAAAGAGC TCAGAGTGGC TGGAATCAGC AAGGGTGTTT TTCCTGCAAG
6901 GAGCCAGAAG TATCAATAAT CACCCAAGGA GGAGACACTG GGAATGAGAG
6951 ACTAGAACAC ACGCCTGCAG ATACGGAGAA CCTCAGCATT GCCGCTCTCT
7001 CCCATAACTG CACACCCCCT TCTGTAACT CTGCTTCTTT CTTTCACCTG
7051 AAGATGGCCC TTGCTTTTTT TTATTATAGG ACANGATAAC TAGACCAGAA
7101 AGTCAACCTG ACTCTCTACA TTTATATGTC TTCCCAGNTC AAGAAATATT
7151 ATTTACTGGT GAATGGCACT TCTATATTCC CTTGGTTCAA TAAGTCTACA
7201 GGATCCATTC ATTGACAGGC CAAGAGTGAG ATCACATGAT ACCCAAGCAC
7251 ATGGGTCTTT CTTGAAGGA GAAGGATCCA

FIG. 4G



1 ATGTTTCGTCGTGGGTCTGCTTGGCCTCCTTGACAGCTCCTGGTTTTGCTTACACGGTCAAC
61 ATCAATGGTAATGATGGCAATGTAGACGGAAGTGGACAGCATTCCGGTGAGCATCAATGGT
121 GTGCACAACGTGGCCAATATCGACAACAATAACGGCTGGGACTCCTGGAATAGCCTCTGG
181 GACTATGAAAACAGTTTCGCTGCCACGAGACTCTTCTCCAAGAAGTCATGCATTGTGCAC
241 AGAATGAACAAGGATGCCATGCCCTCCCTTCAGGACCTCGATACAATGGTCAAGGAACAG
301 AAGGGTAAAGGGCCTGGAGGAGCTCCTCCCAAGGACTTGATGTACTCCGTCAACCCTACC
361 AGAGTGGAGGACCTGAATACATTCGGACCAAAGATTGCTGGCATGTGCAGGGGCATCCCT
441 ACCTATGTGGCCGAGGAGATTCCAGGACCAAACCAGCCTTTGTACTCAAAGAAGTGCTAC
501 ACAGCTGACATACTCTGGATTCTGCGGATGTCCTTTTGTGGAACATCAGTGGAGACATAC
561 TAG

FIG. 5

18/24



1 MKLTMFVVGL LGLLAAPGFA YTVNINGNDG NVDGSGQQSV SINGVHNVAN
51 IDNNNGWDSW NSLWDYENSF AATRLFSKKS CIVHRMNKDA MPSLQDLDTM
101 VKEQKGKGGP GAPPKDLMYS VNPTRVEDLN TFGPKIAGMC RGIPTYVAEE
151 IPGPNQPLYS KKCYTADILW ILRMSFCGTS VETY

FIG. 6



19/24

1 atgcctgact tctcacttca ttgcattggt gaagccaaga tgaagtacac
51 aattgccttt gctggacttc ttggtgtctt cctgactcct gcccttgctg
101 actatagtat cagtgtcaac gacgacggca acagtgggtg aagtgggcag
151 cagtcagtga gtgtcaacaa tgaacacaac gtggccaacg ttgacaataa
201 caatggatgg aactcctgga atgccctctg ggactataga actggctttg
251 ctgtaaccag actcttcgag aagaagtcac gcattgtgca caaatgaag
301 aaggaagcca tggcctccct tcaagccctt gatgcgctgg tcaaggaaaa
351 gaagcttcag ggtaagggcc cagggggacc acctcccaag agcctgaggt
401 actcagtcaa ccccaacaga gtcgacaacc tggacaagtt tggaaaatcc
451 atcgttgcca tgtgcaaggg gattccaaca tacatggctg aagagattca
501 aggagcaaac ctgatttcgt actcagaaaa gtgcatcagt gccaatatac
551 tctggattct taacatttcc ttctgtggag gaatagcgga gaactaa

FIG. 7



20/24

1 MKFTIAFAGL LGVELTPALA DYSISVNDDG NSGGSGQQSV SVNNEHNVAN
51 VDNNGWNSW NALWDYRTGF AVTRLFEKKS CIVHKMKKEA MPSLQALDAL
101 VKEKKLQGKG PGGPPPKSLR YSVNPNRVDN LDKFGKSIVA MCKGIPTYMA
151 EEIQGANLIS YSEKCISANI LWILNISFCG GIAEN

FIG. 8



21/24

Human	1	MKFTIVFAGLLGVFLAPALANYNIDVNDDNNNAGSGQQSVSVNNEHNVAN	50
Pig	1	MKFTIAFAGLLGVFLTPALADYSISVNDDGNSGGSGQQSVSVNNEHNVAN	50
	51	VDNNNGWDSWNSIWYDYGNGFAATRLFQKKTCIVHKMKKEVMPSIQSLDAL	100
	51	VDNNNGWNSWNALWSYRTGFAVTRLFRKKSCIVHKMKKEAMPSLQALDAL	100
	101	VKEKKLQGKGPGGPPPKGLMYSVNPKNVDDLSKFGKNIANMCRGIPTYMA	150
	101	VKEKKLQGKGPGGPPPKSLRYSVNPNRVDNLDKFGKSIVAMCKGIPTYMA	150
	151	EEMQEASLFFYSGTCYTTSVLWIVDISFCGDTVEN 185	
	151	EEIQGANLISYSEK CISANILWILNISFCGGIAEN 185	

FIG. 9



22/24

1

50

Human MKFTIVF.AG LLGVFLAPAL ANYNIDVN.D DNNNAGSGQQ SVSVNNEHNV

Pig MKFTIAF.AG LLGVFLTPAL ADYSISVN.D DGNSGGSGQQ SVSVNNEHNV

Mouse MKLTM.FVVG LLGLLAAPGF A.YTVNINGN DGNVDGSGQQ SVSINGVHNV

51

100

Human ANVDNNNGWD SWNSIWDYGN GFAATRLFQK KTCIVHKMNK EVMPSIQSLD

Pig ANVDNNNGWN SWNALWDYRT GFAVTRLFEK KSCIVHKMKK EAMPSLQALD

Mouse ANIDNNNGWD SWNSLWDYEN SFAATRLFSK KSCIVHRMNK DAMPSLQDLD

101

150

Human ALVKEKKLQG KGPGGPPPKG LMYSVNPKNV DDLSKFGKNI ANMCRGIPTY

Pig ALVKEKKLQG KGPGGPPPKS LRYSVNPNRV DNLDKFGKSI VAMCKGIPTY

Mouse TMVKEQK..G KGPGGAPPKD LMYSVNPTRV EDLNTFGPKI AGMCRGIPTY

151

188

Human MAEEMQEASL FFYSGTCYTT SVLWIVDISF CGDTVEN

Pig MAEEIQGANL ISYSEKCISA NILWILNISF CGGIAEN

Mouse VAEEIPGPNQ PLYSKKCYTA DILWILRMSF CGTSVETY

FIG. 10

23/24

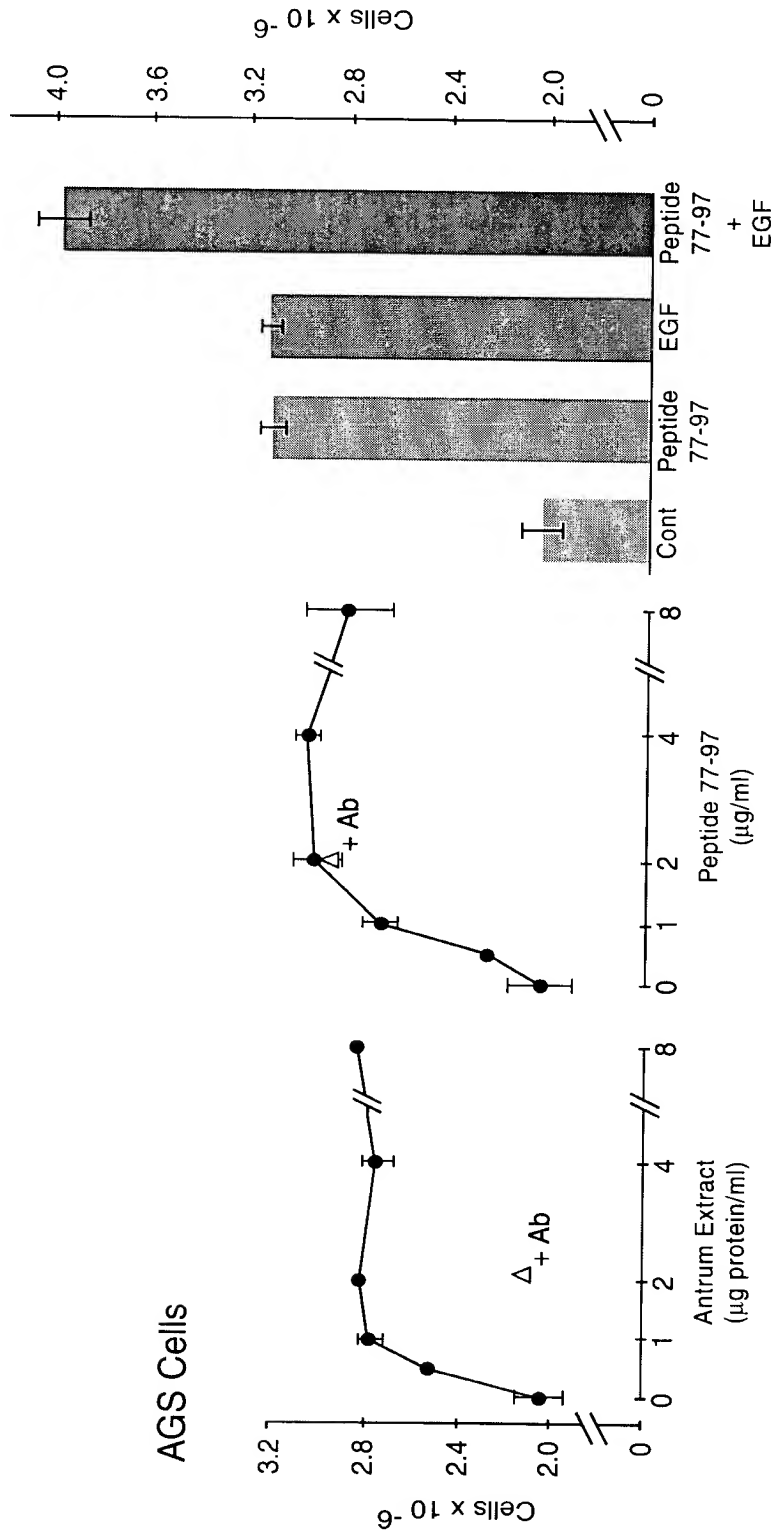


FIG. 11

24/24

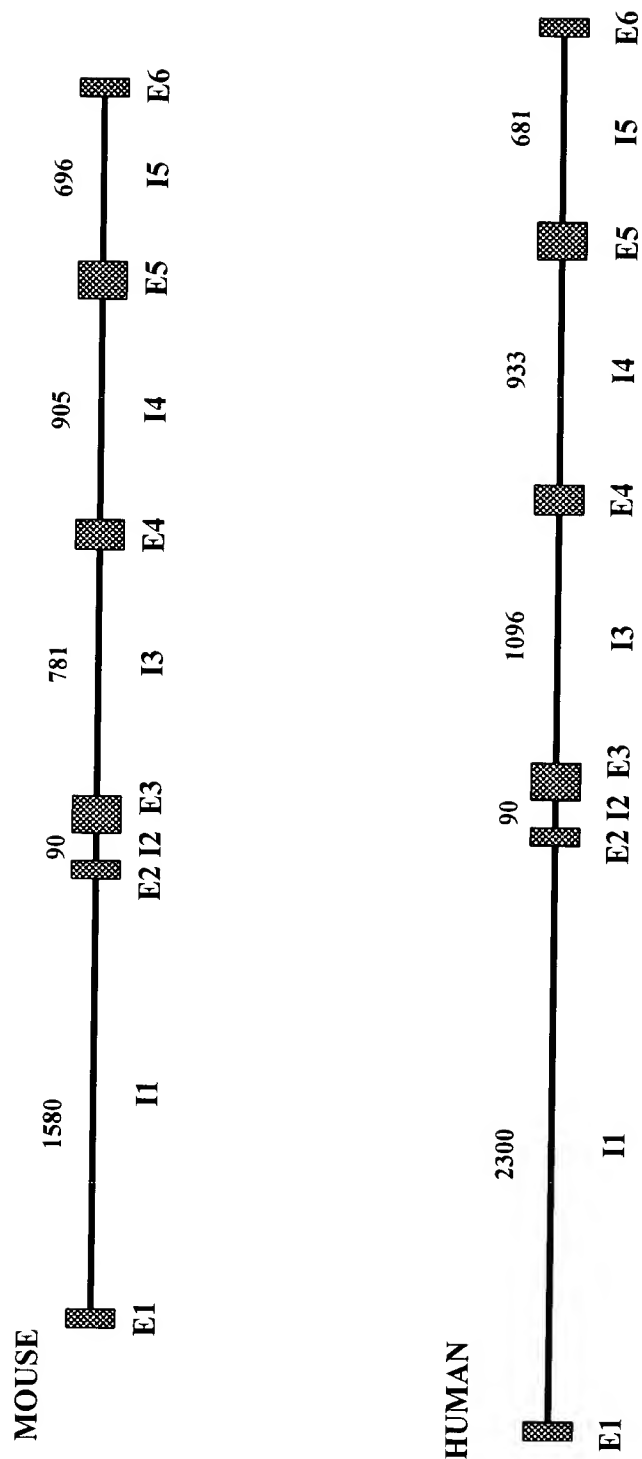


FIG. 12